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The Heavy Metal Deposit Visualization on Organ Tissues after Slaughtering on Beef Production

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INTRODUCTION

Currently, heavy metal especially lead (Pb) is highly potential in polluting environment that may be harmful to animal productions and human health because of its accumulation (Harteman 2011). The lead accumulation effect to the risk organs getting worse by increasing deposit number in the tissues target. Since beef is one of animal protein resources of human meal, it is important to consider the lead accumulation effect to the human health (Suyanto *et al.* 2010). Over Pb accumulation in vital organs has a toxic effect to the individual (D'Mello 2003). This study was aimed to visualize lead deposit at the muscle, liver and kidney tissues and to examine the lead levels in evaluated tissues.

MATERIALS AND METHODS

The tissue samples were collected from slaughter houses surrounds Bogor. Tissue samples were divided into 2 parts, one part was fixed in 4 % paraformaldehyde for histological method, which lead was visualized by *Rhodizonate* (Kiernan 1990), and the other part was prepared for lead value level analysis using Atomic Absorbent Spectrophotometer.

RESULTS AND DISCUSSION

The result showed that the accumulation lead in muscle was scattered in outer connective tissue rather than in muscle cell. In the liver, lead accumulation was found in hepatocyte at the peripheral area of lobules. While in the kidney, lead was mainly deposited in renal tubule, although slightly also found in glomerular area. Further evaluation using AAS indicated that all evaluated organ samples showed an exceeded value from recommended maximum number approved by Indonesian government (SNI 7387:2009). Those lead values levels in the muscle, liver, and kidney tissues, respectively were as followed 1.24 ± 0.33 ppm, 1.59 ± 0.61 ppm, 1.11 ± 0.20 ppm. The result indicated that excluding the outer muscle connective tissue in beef production will reduce a risk in accumulating lead deposit, and consuming liver and kidney was potentially catch lead from meal, which is harmful to human health. More over these data may indicate how important the regular control on lead pollutant to improve beef quality.

CONCLUSION

It can be concluded that both approaches giving an easy guidance in understanding the risk of getting lead through the "meat" production. The histochemical data indicated that there may be a hepatocyte function failure risk and get a renal tubular damage when the lead accumulation was there.

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